



Summer 2001



Special points of interest:

- Swimming when ill with diarrhea can make everyone in the pool sick.
- Chlorine kills germs, but it takes time.
- Even the best-maintained pools can spread illness.
- Prevention of RWIs begins with the education of pool staff and patrons.
- Maintaining recommended chlorine levels will prevent most RWIs.

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RECREATIONAL WATER ILLNESS (RWI): What every pool operator should know!

What are RWIs?

What is the first thing that pops into your head when you think about water safety? Drowning? Slipping? Lightning? All great answers, and all are very important. But, did you know that

germs can contaminate swimming water. These germs cause recreational water illnesses (RWIs) that have made many people sick in the past.

RWIs are caused by

waterborne germs like Crypto (KRIP-toe, short for *Cryptosporidium*), *Giardia* (gee-ARE-dee-uh), *E. coli* 0157:H7, and *Shigella* (Shi-GELL-uh).

Importance of Pool Maintenance: Healthy Swimming

CDC has been gathering information from State health authorities on RWI outbreaks in the United States since 1978. Since 1985, the number of outbreaks of diarrhea, the most common RWI, connected with swimming pools is on the increase. Some of these outbreaks have affected thousands of swimmers.

Crypto is the major germ that causes outbreaks in swimming pools and waterparks, where its high chlorine resistance and small

size make it a difficult problem for even the best-equipped and well-maintained pools. *E. coli* O157:

H7 is sensitive to chlorine so most outbreaks have occurred in locations where no chlorine is added, such as lakes.

Even though small or home pools may have fewer people swimming in them, owners still need to be concerned about RWIs



spread through pool water. Poor maintenance of the pool and the lack of healthy swimming behaviors may lead to low chlorine levels, clogged filters, and contamination of pool water, which may place swimmers at risk for RWIs.



Swimming when ill with diarrhea places others at risk for getting ill.

“...which means even the best maintained pools can spread illness.”



Do your guests know what HEALTHY SWIMMING is?

How swimming can spread illness

Diarrheal illness, the most common RWI, is spread by accidentally swallowing pool water that has been contaminated with fecal matter.

How? If someone has diarrhea, that person

can easily contaminate the pool.

Think about it, pool water is shared by every swimmer and is not sterile.

Chlorine does kill germs, but it takes time.

So, chlorine kills everything, right?

The great news is that germs causing RWIs are killed by chlorine. However, chlorine doesn't work right away. It takes time to kill germs and some germs like “Crypto” can live in pools for days. Even the best-maintained pools can spread illness.

Chlorine Takes Time to Kill All Germs

Fortunately, free chlorine at neutral pH kills most bacteria such as *E. coli* 0157:H7 in less than a minute if the free available chlorine is maintained at proper

disinfection levels throughout the pool.

However, a few germs are moderately (*Giardia*, Hepatitis A) to highly (Crypto)

chlorine-resistant. The table below shows the approximate disinfection times for these germs in chlorinated water.

Agent	Disinfectant Times for Fecal Contaminants in Chlorinated Water*
<i>E. coli</i> 0157:H7 Bacteria	<< 1 minute
Hepatitis A Virus	approximately 16 minutes
<i>Giardia</i> Parasite	approximately 45 minutes
<i>Cryptosporidium</i> Parasite	approximately 9600 minutes (6.7 days)

* 1mg/L (1ppm) chlorine at pH 7.5 and 25° C

Swim Diapers: A False Sense of Security

The use of swim diapers and swim pants may give many parents and pool staff a false sense of security regarding fecal contamination.

No published scientific information exists on

how well they are able to keep feces or infection-causing germs from leaking into the pool.

However, it is unlikely that swim diapers are able to keep diarrheal stools, the high risk

event, from leaking into the pool.

Be aware that swim diapers and swim pants are not a solution for a child with diarrhea or a substitute for frequent diaper changing.

Making Your Pool Safer

"No matter how well you institute prevention measures you must also educate your staff and patrons so that the risk of RWIs can be reduced even more."

Focus on Protection!

Several changes can be made within your facility that will reduce the chance of spreading RWIs.

Educate your pool staff.

Maintaining pool water quality according to existing public health requirements will prevent the spread of most RWIs.

Ensure that the pool operator, at a minimum, has taken part in a standardized training course given by aquatics professionals.

Integrate the "P-L-E-As" for Healthy Swimming (see box) into staff training and promote them around the pool.

Inform parents that unhealthy behaviors at poolside and elsewhere are no longer acceptable. Parents told CDC that they wanted to be able to rely on the lifeguards for help and enforcement.

Make sure that staff

can explain, in a way that is unoffensive and acceptable to parents, why behaviors such as using public tables and chairs for diaper changing is a health risk. This may require that an older, more experienced staff member be assigned to the kiddie pool.

Educate your patrons.

Educate your season pass holders. You may choose to begin by educating them first since they may feel more ownership of the facility and want to make the facility as safe as possible.

Educate your daily patrons. You might hand out prevention messages ("P-L-E-As" for Healthy Swimming or CDC brochure) as patrons enter the pool or park area.

Remember that people care about their health, so a lead-in might be: "To ensure the health

"Prevention of RWIs should be part of every safety program, just like drowning, lightning, injuries, and sunburns."

YOU CAN CHOOSE TO SWIM HEALTHY!

Healthy Swimming behaviors are needed to protect you and your kids from RWIs and will help stop germs from getting in the pool in the first place. Here are six "P-L-E-As" that promote Healthy Swimming:

Three "P-L-E-As" For All Swimmers

PLEASE don't swim when you have diarrhea... this is especially important for kids in diapers. You can spread the germs into the water and make other people sick.

PLEASE don't swallow the pool water. In fact, try your best to avoid even having water get in your mouth

PLEASE wash your hands with soap and water after using the toilet or after changing diapers. You can protect others by being aware that germs on your body end up in the water.

Three "P-L-E-As" For Parents with Young Kids

PLEASE take your kids on bathroom breaks often. Waiting to hear "I have to go" may mean that it's too late.

PLEASE change diapers in a bathroom and not at poolside. Germs can spread to surfaces and objects in and around the pool and spread illness.

PLEASE wash your child thoroughly (especially the rear end) with soap and water before swimming. We all have invisible amounts of fecal matter on our bottoms that end up in the pool.

and safety of all our visitors, we ask that you remember to follow these easy "P-L-E-As" for Healthy Swimming."

Consider implementing a short safety orientation for larger groups, especially those with young children, before they enter the pool complex, that includes education about RWIs.

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Don't swallow the pool water. In fact, try your best to avoid even having water get in your mouth.

FOR MORE INFORMATION
VISIT US AT:

www.cdc.gov/healthyswimming

Reducing Fecal Contamination

There are actions you can take to reduce fecal accidents by helping parents get their children to the bathroom by scheduling an hourly break for disinfectant testing and bathroom use, just like adult swim time. Staff should let patrons know that this break provides optimal timing for bathroom use.

Additionally, to prevent transmission of germs and get people to use the facilities, you should ensure that the bathrooms are clean, a

convenient distance from the pool to ensure use, that they are stocked with toilet paper, and that they have ample soap for handwashing.

Parents continue to want to see regular chlorine testing and appropriate disinfection following fecal accidents.

So even if you are not required to do so, have a written fecal accident response policy (see web-page for CDC recommendations if your health department

does not have one).

This may help you respond more efficiently to problems. You may have little control over a toddler's soiling your kiddie pool, but you do have control over how you document and respond to this occurrence.

You might also consider keeping diaper/toddler-aged children in the pools specifically designated for them.

It pays to be proactive.

Maintaining the Highest Water Quality

Maintaining recommended chlorine levels will prevent most RWI outbreaks such as E. coli 0157:H7.

Keep the chemical feed equipment and chemicals at optimal levels within state and local government regulations.

Be sure to monitor chlorine regularly where the chlorine is needed—at poolside.

As you know pH also needs to be monitored regularly, and poor pH control can compromise chlorine's effectiveness as a disinfectant.

You should be able to prevent waterparks, pools, or hot tubs from running out of chlorine through regular monitoring, and pumphouse and systems checks.

If your kiddie pool filtration system is connected with other pools, this increases the chance that fecal contamination can be dispersed from the kiddie pool to the other pools.



The best situation is one in which there is a separate filtration system for the kiddie pool.

Increasing the water turnover rates in kiddie pools may decrease the length of time that swimmers are exposed to contaminating germs. Remember to consult with public health officials to avoid creating a suction injury situation.